new matter nor new issue, because this recitation is a rephrased recitation of what was previously recited. That is, as previously recited, the cylinder cam structure is co-axially connected to the plate, which structure is clearly indicated in Figures 1(a) and 1(b), and no new element has been introduced in the claims. Amendment (iii) raises neither the issue of new matter nor new issue, because this recitation is a merely rephrased recitation of what was previously recited. That is, as previously recited, when the plate is at the upper position, the upper chamber is at the second pressure whereas both the lower chamber and the common section (intermediate section) are at the first pressure, i.e., the first-pressure space is larger than the second-pressure space. When plate is at the lower position, the lower chamber is at the second pressure whereas both the upper chamber and the common section (intermediate section) are at the first pressure, i.e., the first-pressure space is larger than the second-pressure space.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE." Applicants respectfully request entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Rejection Under 35 U.S.C. § 103

Claims 1, 3-4, 6-8, and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Adams in view of Hautau and Predhome Jr. Claims 8 and 10 have been canceled without prejudice, and Claim 1 has been amended. In response to Applicant's argument filed on 6/27/2002, the Examiner states

> 1. Adams discloses three sections and essentially uses a single divider plate. The other two plates being redundant, could obviously eliminated.
>
> 2. Actual pressure or pressure differential is related to intended use and does not impart patentability. The apparatus disclosed by Adams is capable of creating and maintaining pressure differential.

However, "the test for an implicit showing is what the combined teaching, knowledge of one of ordinary skill in the art , and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). M.P.E.P. 2143.01. The section of M.P.E.P. further explains:

> In *In re Kotzab*, the claims were drawn to an injection molding method using a single temperature sensor to control a plurality of flow control valves. The primary reference disclosed a multizone device having multiple sensors, each of which controlled an associated flow control valve, and also taught that one system may be used to control a number of valves. The court found that there was insufficient evidence to show that one system was the same as one sensor.

> While the control of multiple valves by a single sensor rather than by multiple sensors was a "technologically simple concept," there was no finding "as to the specific understanding or principle within the knowledge of the skilled artisan" that would have provided the motivation to use a single sensor as the system to control more than one valve. 217 F.3d at 1371, 55 USPQ2d at 1318. (emphasis added.)

Adams uses three plates, and the Examiner asserts that eliminating two out of the three plates could be obvious. However, if the two plates are eliminated, clearly, the low pressure space becomes double, and more power or time is required to evacuate the doubled space. There is no motivation for one of ordinary skill in the art to accomplish the above. Adams in no way suggests eliminating the two plates. The Examiner asserts that the pressure difference is related to intended use. However, because of the pressure difference, Adams minimizes the low pressure space by using three plates, and the pressure difference is clearly related to the structure.

In the present invention, because a single plate is used, the low pressure space is double. Negative pressure is exerted on the single plate, thereby placing pressure on the support cylinder. However, this pressure enhances a locking mechanism when using the cam structure recited in the clams. Adams is irrelevant to this structure.

The Examiner further asserts:

> 3. The motivation for using lifting mechanism as taught by Hautau and Predhome Jr would be its speed, economy, simplicity and reliability. Any mechanism to convert rotary to linear motion, for example a ball screw with an attached rotary drive, will also resist any motion out of sealed position when resting at one of the stops.

However, the cam mechanism of Hautau or Predhome Jr is simply for controlling the vertical positions of a device, and cannot be used for lifting a heavy-weighted apparatus. In Hautau, as shown in Figure 4, a support cylinder 102 and a cam cylinder 114 are not co-axial, and clearly, by this structure, it is impossible to lift a heavy-weighted device. In Predhome Jr, as shown in Figure 5, a cam cylinder 50 rotates with a horizontally disposed shaft 26 and a bush 46. Clearly, by this structure, it is impossible to lift a heavy-weighted device. Neither cam mechanism is designed for high stress use. In the present invention, by co-axially arranging the plate, the cam cylinder, the support cylinder, and the rotary actuator, the plate (a heavy-weighted device) can be vertically moved accurately, and further, this cam mechanism resists against the pressure exerted on the support cylinder. Neither Hautau nor Predhome Jr suggests the cam mechanism recited in the claims.

Thus, the claims as amended herein could not be obvious over the references, and Applicant respectfully requests withdrawal of this rejection.

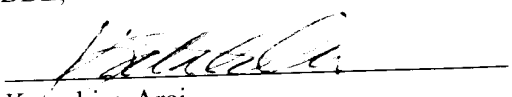
CONCLUSION

In light of the Applicants' foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: October 24, 2002 By: 

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 8 and 10 have been canceled.

Claim 1 has been amended as follows:

1. (Twice amended) A multi-chamber load-locking device for transferring wafers between a first-pressure area and a second-pressure area, said device having an interior divided into (i) an upper chamber and (ii) a lower chamber, both of which are for transferring wafers at the second pressure which is higher than the first pressure, and (iii) an intermediate section located between the upper chamber and the lower chamber, which is for loading/unloading wafers at the first pressure, said device comprising (a) a single divider plate having an upper side and a lower side, both of which are for temporarily supporting wafers, said plate moving reciprocally between an upper position and a lower position; (b) a cylindrical cam structure co-axially connected to said plate, wherein said plate moves between the first position and the second position by rotation of the cylindrical cam structure; and (c) a rotary actuator for rotating the cylindrical cam structure, said cam structure comprises (1) a cam cylinder having a cam groove which rotates with the rotary actuator, and (2) a support cylinder having a cam follower which support cylinder is attached to the plate and does not rotate, wherein the cam follower is fitted in the cam groove and moves vertically when the cam groove rotates, said support cylinder being provided inside ~~or outside~~ the cam cylinder, wherein the plate, the cam cylinder, the support cylinder, and the rotary actuator are co-axial, wherein

when the plate is at the upper position, the plate divides and seals the upper chamber from the intermediate section and the lower chamber, wherein the upper chamber is at the second pressure, as a second-pressure space, while both the intermediate section and the lower chamber are at the first pressure, as a first-pressure space, to cause a pressure difference exerting downward force on the plate, the cam follower being configured to be locked in the cam groove to withstand the downward force on the plate, whereby wafers at the upper side of the plate are transferred between the first-pressure area and the second-pressure area via the upper chamber, and

when the plate is at the lower position, the plate divides and seals the lower chamber from the intermediate section and the upper chamber, wherein the lower chamber is at the second pressure, as a second-pressure space, while both the intermediate section and the upper chamber

are at the first pressure, as a first-pressure space, to cause a pressure difference exerting upward force on the plate, the cam follower being configured to be locked in the cam groove to withstand the upward force on the plate, whereby wafers at the lower side of the plate are transferred between the first-pressure area and the second-pressure area via the lower chamber,

wherein at both the higher and the lower positions of the plate, the first-pressure space is larger than the second-pressure space in the interior of the device.